

## CLAIMS

1. A method for supplying reaction gases in a catalytic gas-phase oxidation reaction in which at least a material to be oxidized and a gas containing molecular oxygen are mixed and the resultant mixture is supplied to a catalytic gas-phase oxidation reactor, characterized in that, a feed rate of the material to be oxidized and a feed rate of the gas containing molecular oxygen are adjusted so that when a composition of a gas at the inlet of the catalytic gas-phase oxidation reactor is changed from a composition A point [the concentration of the material to be oxidized:  $R(a)$ , and the concentration of oxygen:  $O(a)$ ] represented by plotting a concentration of the material to be oxidized and a concentration of oxygen in the gas at said inlet to a composition B point [the concentration of the material to be oxidized:  $R(b)$ , and the concentration of oxygen:  $O(b)$ ] [with a proviso that the composition A point and the composition B point are compositions outside a range in which the material to be oxidized and oxygen possibly react to cause explosion (an explosion range), and  $R(a) \neq R(b)$  and  $O(a) \neq O(b)$ ], compositions on the way of the change from the composition A point to the composition B point fall outside the explosion range.

2. The method for supplying reaction gases in the catalytic gas-phase oxidation reaction according to claim 1, wherein one of the feed rates of the material to be oxidized and the gas containing molecular oxygen is adjusted in advance by increasing it or decreasing it to the direction away from the explosion range and then the other feed rate is adjusted by increasing it or decreasing it to reach to the composition B point so that the compositions on the way of the change from the composition A point to the composition B point fall outside the explosion range.

3. The method for supplying reaction gases in the catalytic gas-phase oxidation reaction according to claim 1, wherein in the case there exists the

composition C point [the concentration of the material to be oxidized:  $R(c)$ , and the concentration of oxygen:  $O(c)$ , wherein  $O(c) < O(a)$ ,  $O(c) < O(b)$  and  $R(b) > R(c) > R(a)$  or  $R(a) > R(c) > R(b)$ ] of the lowest oxygen concentration of an explosion limit in the explosion range, a feed rate of the material to be oxidized and a feed rate of the gas containing molecular oxygen are adjusted so that compositions on the way of the change from the composition A point to the composition B point pass through the composition C' point [the concentration of the material to be oxidized:  $R(c')$ , and the concentration of oxygen:  $O(c')$ , wherein  $R(c') = R(c)$  and  $O(c') < O(c)$ ].

4. The method for supplying reaction gases in the catalytic gas-phase oxidation reaction according to claim 1, wherein the range in which the material to be oxidized and oxygen possibly react to cause explosion (the explosion range) and a present compositional point represented by plotting concentrations of the material to be oxidized and oxygen in the gas at the inlet of the catalytic gas-phase oxidation reactor are shown and monitored on a display.

5. The method for supplying reaction gases in the catalytic gas-phase oxidation reaction according to claim 1, wherein the material to be oxidized is isobutylene, tertiary butyl alcohol or methacrolein.

6. A program which makes a computer function as a means for showing on a display a compositional range which, in the case at least a material to be oxidized and a gas containing molecular oxygen are mixed, possibly reacts to cause an explosion (an explosion range), and as a means for showing on the display a compositional point which is represented by plotting the measured values of concentration of the material to be oxidized and oxygen in a gas at the inlet of a catalytic gas-phase oxidation reactor as well as the explosion range.